REMARKS/ARGUMENTS

This Revised Reply is submitted in substitute for the timely Reply dated March 24, 2006 in response to the Notice of Non-Compliant Amendment date March 31, 2006. As stated in the prior Reply, applicants' intent is to reinstate the original claims.

Claims 7, 8 and 33 had previously been indicated as allowable so applicants had cancelled all other claims in an effort not to delay the issuance of the allowable subject matter with the intent of pursuing the rejected claims in a continuation application. Since the Examiner now rejects claims 7, 8 and 33 using the same primary reference, Anderson, upon which the prior rejections were based, applicants hereby resubmits original claims 1-44 as new claims 45-88 and addresses all of the examiner's rejections herein.

The Prior Art Rejections

Collectively in the Office Actions dated 7/28/05 and 1/12/06, all claims have been rejected as obvious over Anderson in combination with one or more of Freeburg, Bark, Keskitalo and Velazquez. These rejections are traversed.

Anderson does not disclose or suggest a mobile unit configured to send a sounding pulse to effectuate handoff of a wireless communication. While it is true that the mobile units in Anderson have omni-directional antennas, there is no

disclosure of transmitting a sounding pulse by the mobile unit to initiate handover or for any other purpose.

The Examiner had cited Freeburg's teaching of transmitting sounding pulses in the first action. Freeburg does teach the use of sounding pulses, but not omni-directional pulses. In Freeburg, six sounding pulses are sent in six different directions in order to ascertain a multi-path profile. Freeburg does not suggest or disclose, using omni-directional sounding pulses to assist in hand-off of a wireless communication.

In Anderson, handoff procedures are explained in detail at columns 15-16 of the Anderson patent. In Anderson, the mobile station is configured to continually monitor multiple base station polling signals.

> At a network-maintenance step 315, **the user station 102 may listen on one or more different air channels 203**, other than the one(s) currently being used by the user station 102, for the general poll message 301 and the specific poll message 302 from nearby base stations 104. The user station 102 continues to communicate on its designated air channel(s) 203 with its current base station 104 and responds as necessary to information messages 303 from that base station 104. However, **unless a handoff procedure is initiated as described below, the user station 102 does not transmit in response to other nearby base stations 104** and therefore does not occupy air channels 203 of those base stations 104. Column 15, lines 9-20.

When handoff is initiated, the mobile unit performs a complex procedure based on its monitoring activity:

> More specifically, a handoff procedure may be initiated when the received signal level at a user station 102 falls below an acceptable level. While the user station 102 receives bearer traffic from its originating base station 405, the user station 102 measures the received signal quality (e.g., RSSI) of its communication link 312. The received signal quality value, together with measurements of the current frame error rate and type of errors, determines the overall link quality. **If the overall link quality drops below a first threshold (the measurement threshold), the user station 102 begins searching for available air channels 203 (i.e., time slots), first**

> **from the originating base station 104, and then (using appropriate frequencies and spread spectrum codes) from neighboring base stations 104 of adjacent or nearby cells 103.** The user station 102, as mentioned, preferably has obtained information regarding the identities of neighboring base stations 104 (including spread spectrum code set and frequency information) from the originating base station 405 by downloading the information to the user station 102 during traffic mode or otherwise.
>
> **As the user station 102 scans potential new air channels 203 using the appropriate frequency and/or spread spectrum code set, the user station 102 measures and records the received signal quality.** The user station 102 reads a field carried in all base transmissions 204 which describes the current time slot utilization of the base station 104. The user station 102 uses these two pieces of information to form a figure of merit for the new base station signals, including the originating base station 405, and then sorts the base stations 104 by figure of merit. **This procedure allows the user station 102 to evaluate the quality of available air channels 203 for both the originating base station 405 and other nearby base stations 104.** Column 15, line 53 - column 16, line 18.

There is no sending of a sounding pulse by the mobile unit to initiate a hand off procedure, instead the mobile unit monitors signals being continuously broadcast by the various base stations. What is sent is a handoff request to a specific base station based on the mobile units evaluation of the continuously broadcasted signals received from various base stations.

> If the link quality drops below a second threshold level, then the user station 102 (during a no-bearer time slot) **requests a handoff from the base station 104 with the highest figure of merit (which could be a TSI handoff with the originating base station 405). The handoff is requested by seizing an air channel 203, sending a handoff message request, and waiting for an acknowledgment from the new base station 410.** The handoff signaling message contains a description of the circuit connecting the originating base station 405 to the network, which description was passed to the user station 102 at call establishment time. If the new base station 104 accepts the handoff request (by acknowledging), then the new base station 104 becomes the terminal base station 410. Note that the user station 102 maintains its original air channel 203 connection with the originating base station 405 during this handoff procedure, at least until a new air channel 203 is acquired. Column 16, lines 26-42.

This is not an omni-directional sounding pulse intended for reception by multiple nearby base stations which will result in a handoff selection; this hand off request signal is sent after a selection has already been made by the mobile unit.

The Anderson system is entirely different from the claimed invention. When a handoff triggering event occurs, claim 1, for example, defines:

transmitting an omnidirectional sounding pulse from the mobile unit.

Unlike in Anderson, it is the base stations, not the mobile unit which monitor for such sounding pulses in order to implement handoff. Claim 1 (now Claim 45) further defines:

> communicating information related to the detected sounding pulse to the interface by each base station detecting the sounding pulse;
>
> selecting the second base station from the base stations that detected the sounding pulse based on the communicated information;

Thus, the base stations in range of the sounding pulse, communicate information, such as the strength of the pulse received by the respective stations, from which the system makes a handoff decision.

The Examiner cites the following passage from Anderson for this feature:

> In the case of an inter-cluster handoff, the base station controller 408 is not common to both the originating base stations 104 and the terminal base station 406. For these types of handoffs, as with intra-cluster handoffs, **the terminal base station 406 sends a message in the form of a note to its base station controller 408, requesting that the original circuit be switched from the originating base station 405** to ... Column 16, lines 64-68.

The message from base station 406 is responsive to a specific handoff request received from the mobile unit directed to that specific base station, Column 16, lines 26-42. It is not a communication responsive to a sounding pulse which is broadcast for detection by multiple base stations so that the base stations detecting the

sounding pulse can communicate comparative information related to the sounding pulse for deciding to which base station a communication should be handed off.

None of the prior art references, disclose or suggest the broadcast of a sounding pulse by a mobile unit to initiate a handoff procedures. In this regard, the present invention eliminates the need for continual polling broadcasts by the base stations and continual monitoring of such broadcasts by the mobile unit.

Using the inventive system, a handoff can occur to a base station that the mobile unit may not have even been aware was in its vicinity. For example, when a triggering event occurs, the mobile unit may in fact be quite close to an alternative base station which is communicating with other mobile units using beamformed signaling directed away from the mobile unit. Such a base station could then detect the mobile unit's sounding pulse and then be selected to carry on the communication with beamformed signaling directed at the mobile unit.

Note that claim 30 (now claim 74) defines an alternative embodiment where in response to the mobile unit's sounding pulse the method includes:

> directing a communication beam from base stations detecting the sounding pulse towards the mobile unit;
> selecting a handover base station from the base stations that detected the sounding pulse based on the communication beams received by the mobile unit;

This is quite different than the type of monitoring the mobile unit in Anderson performs. There is no suggestion or disclosure in Anderson or the other cited art

that beams from base stations are directed to the mobile unit in response to a sounding pulse transmitted by the mobile unit to initiate handover. Kekitalo does provide a detailed explanation of how the mobile unit can make a determination of which directional signal that it receives would indicate the best candidate base station to which to hand off its communication. However, the fact remains that none of the prior art suggests or discloses transmitted a sounding pulse by the mobile unit to initiate handover.

It is noted that the patentability of the claims was acknowledged in the International Search Report of corresponding PCT Application PCT/US03/29468 which stated:

2. CITATIONS AND EXPLANATIONS
Claims 1-44 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest the transmitting an omnidirectional sounding pulse from the mobile unit; communicating information related to the detected sounding pulse; selecting the second base station from base stations that detectd the sounding pulse based on the communicated information; and continuing the mobile unit's wireless communication via the selected second base station.

By the novel use of a sounding pulse to initiate handover, many advantages over the prior art systems, such as represented by Anderson, are obtained. While Freeburg represents an example of the use of multiple directional sounding pulses for other purposes, none of the prior art, alone or in combination, suggests or discloses the invention defined by claims 1-44 (now claims 45-88).

The Provisional Double Patenting Rejections

Claims 7 and 33 (now claims 51 and 77) have been rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 3, 4, 35, 36, 37 of U.S. Patent Application No. 10/626,165. This is a provisional type double patenting rejection since the potentially conflicting application is pending.

Applicant has been advised that U.S. Patent Application No. 10/626,165 will not be examined until for at least two more years, see copy of USPTO communication attached estimating "approximately 27 months." Accordingly, it is not known at this time whether the pending claims in U.S. Patent Application No. 10/626,165 will be pursued or if a substitute set of claims will be prosecuted.

It is respectfully submitted that due to the USPTO's anticipated delay in examining U.S. Patent Application No. 10/626,165, any double patent rejection be deferred to the prosecution of that case. Accordingly, withdrawal of the provisional double patenting rejection is respectfully requested.

Conclusion

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephone interview will help to materially advance the prosecution of this

application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing amendment and remarks, Applicants respectfully submit that the present application, including claims 45-88, is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

Cave et al.

By_____
C. Frederick Keonig III
Registration No. 29,662

Volpe and Koenig, P.C.
United Plaza, Suite 1600
30 South 17th Street
Philadelphia, PA 19103
Telephone: (215) 568-6400
Facsimile: (215) 568-6499

CFK/djw
Attachment.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

VOLPE AND KOENIG, P.C.
DEPT. ICC
UNITED PLAZA, SUITE 1600
30 SOUTH 17TH STREET
PHILADELPHIA PA 19103

DATE : 03/24/2006

To: Applicant of Serial Number 10626165
Filed on 24-JUL-2003
(Art Unit 2616)

It is estimated that this application will receive an Office action in approximately 27 months. This is an estimate that is based on the current inventory level of applications filed in this art area and the current staffing levels in this Art Unit. The USPTO is dedicated to minimizing first action and total pendency, and we are targeting resources to help address backlogs in art areas with high new application filings. Thank you for your inquiry.

Customer Service Office in Technology Center: 2600

Phone Number:	571-272-2600
Central Fax Number:	571-273-8300